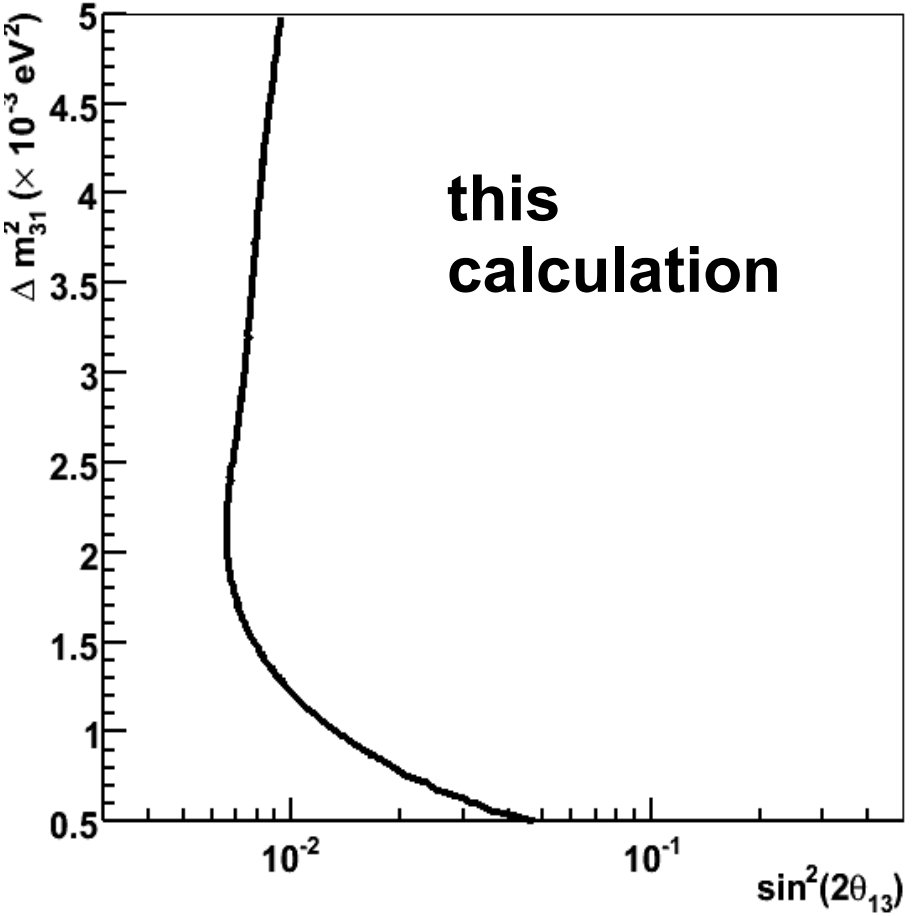
Sensitivity Study Update

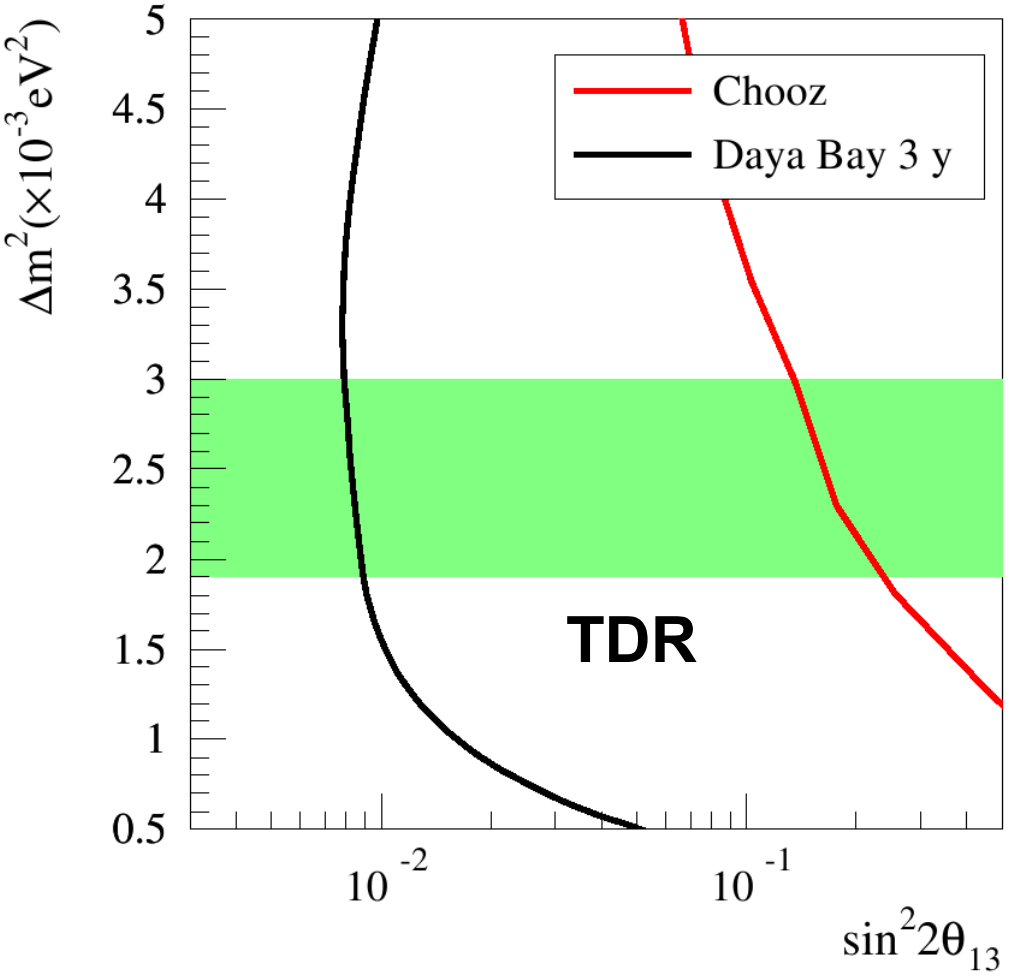
BNL Daya Bay Meeting
Jan 18, 2008

presented at Dec workshop...

90% Confidence Level Sensitivity

Step 1: reproduce baseline sensitivity from TDR...

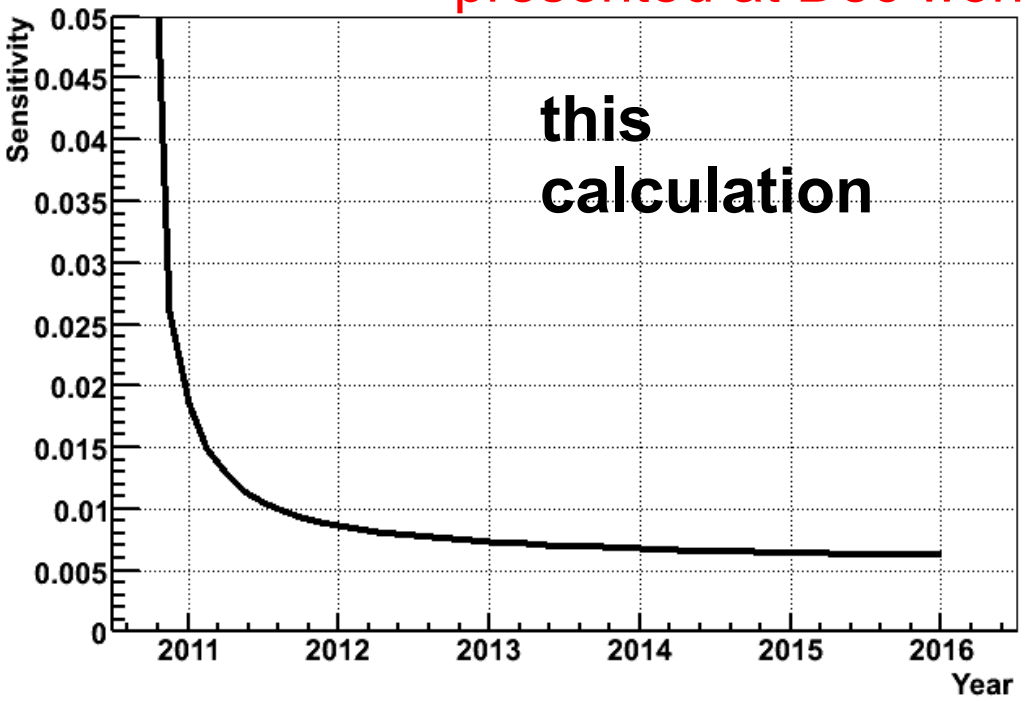




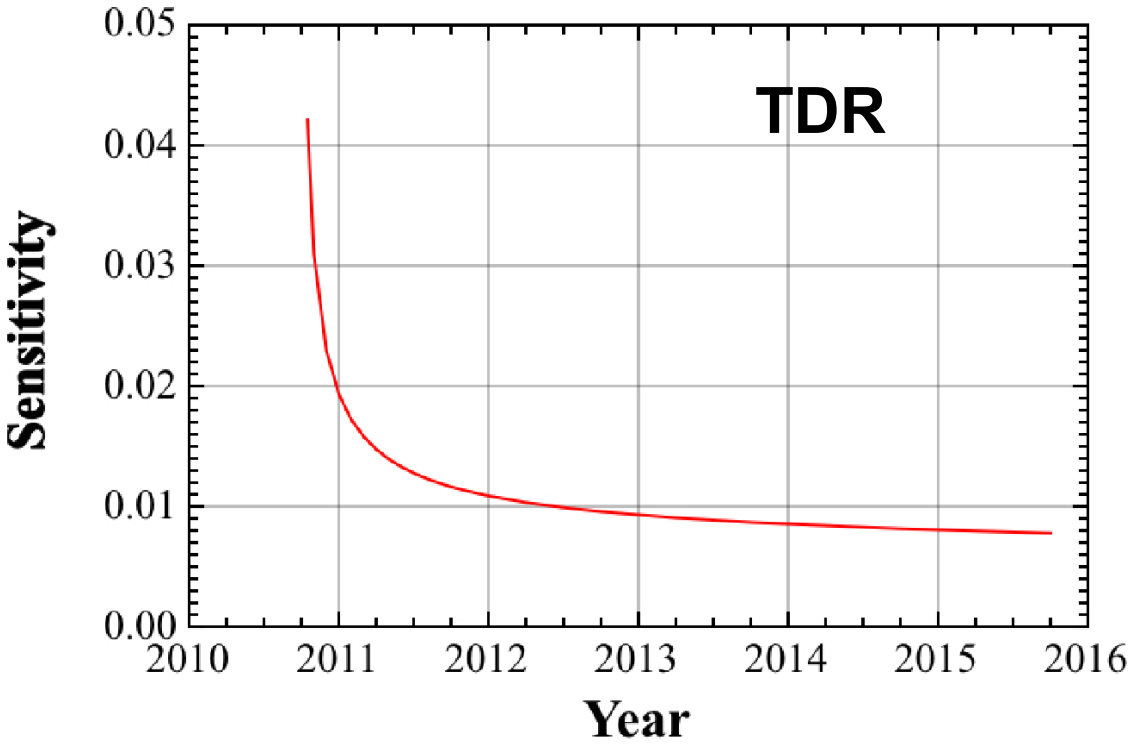
0.007 at $\Delta m^2 = 2.5 \times 10^{-3}$ eV^2

0.008 at $\Delta m^2 = 2.5 \times 10^{-3}$ eV^2

presented at Dec workshop...

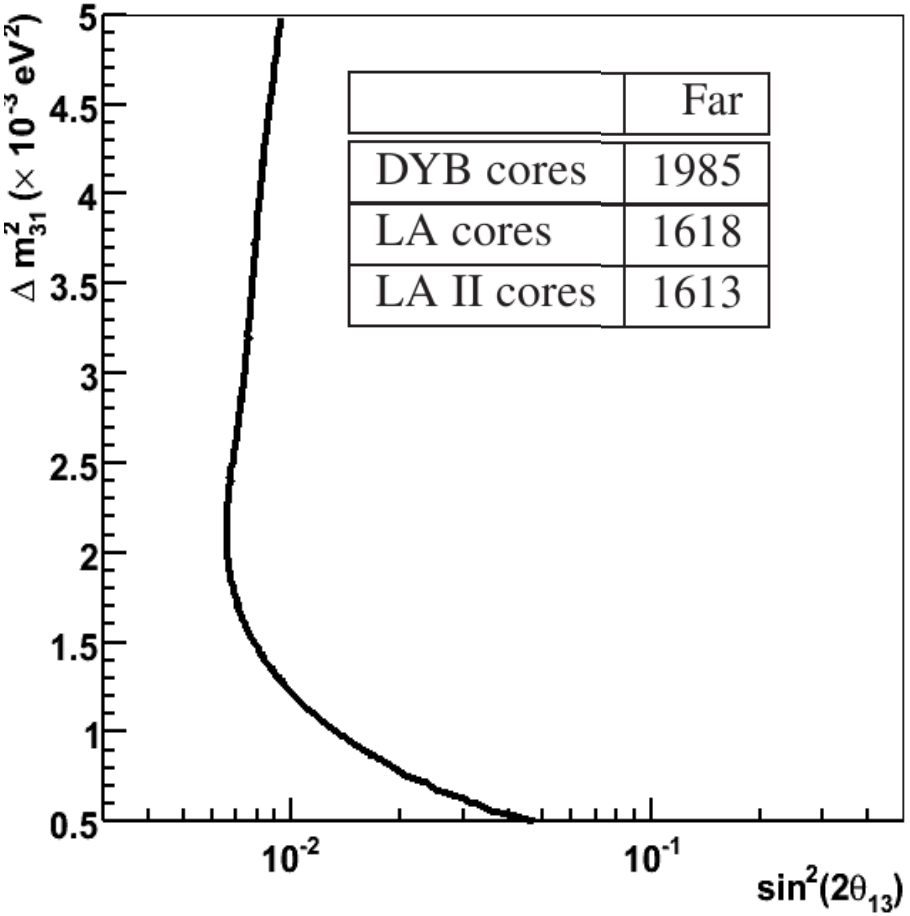


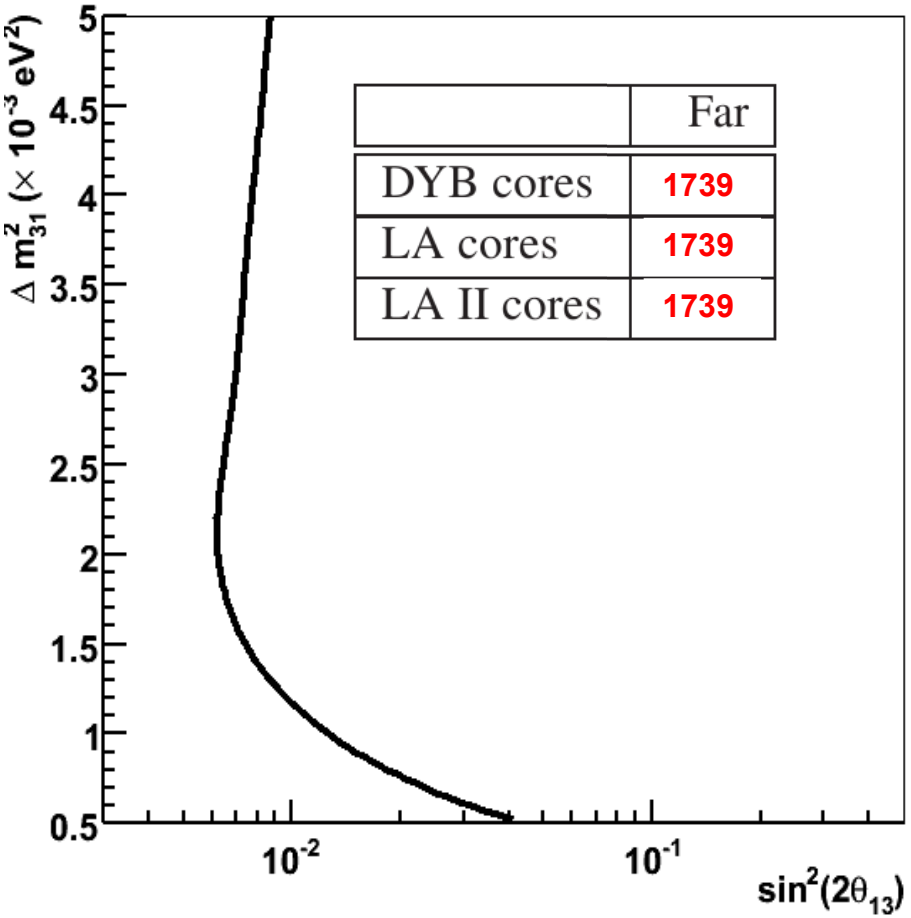
Sensitivity vs. Time



shape of sensitivity curve in that region should be very sensitive to average L/E...

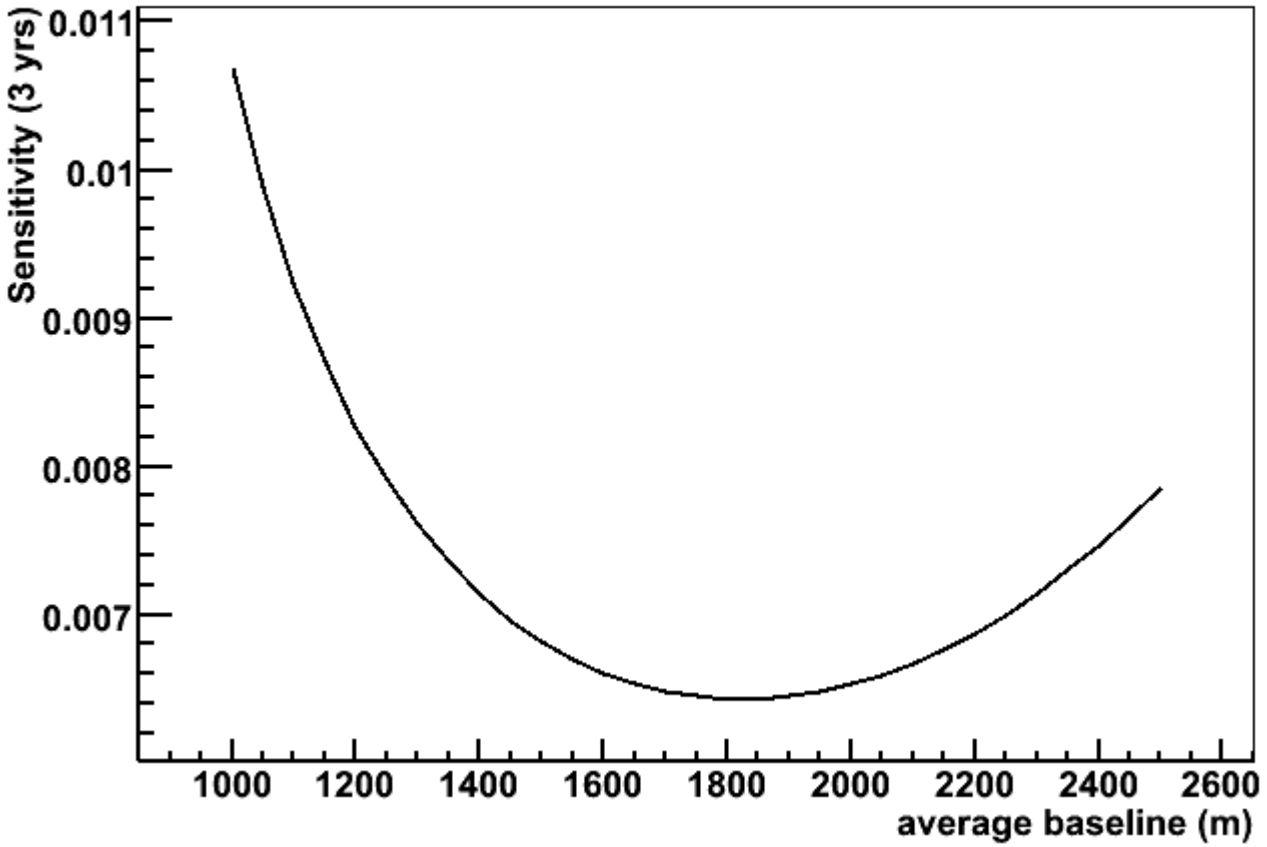
want to study effect of changing the baseline by using an “average” distance to the far detector....

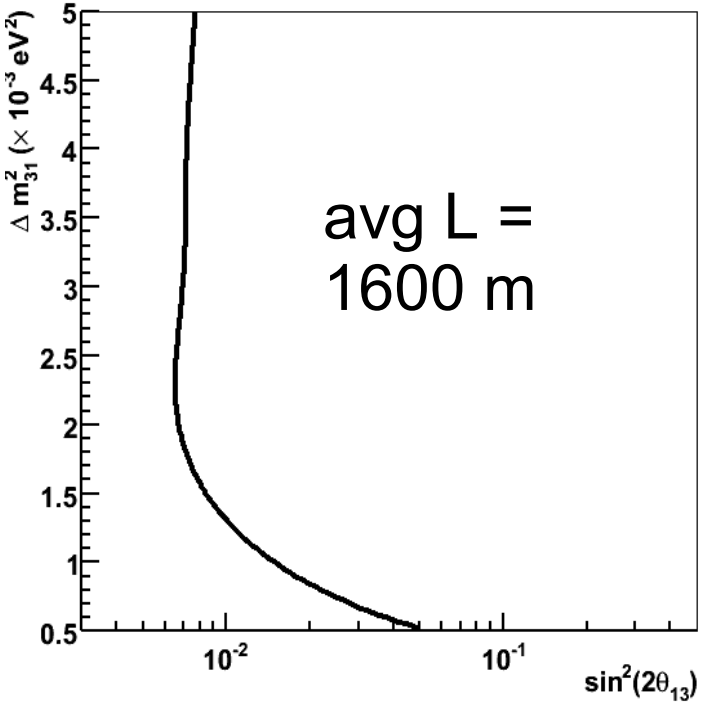


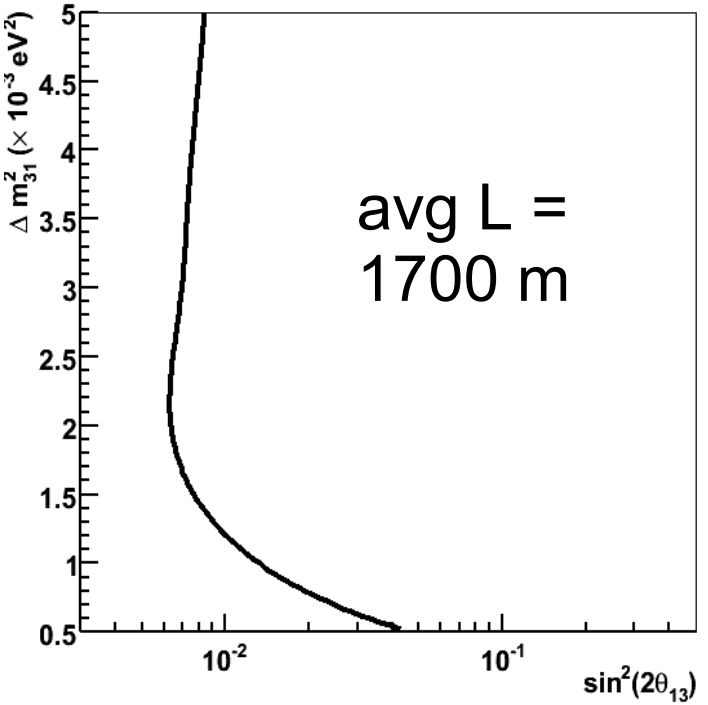


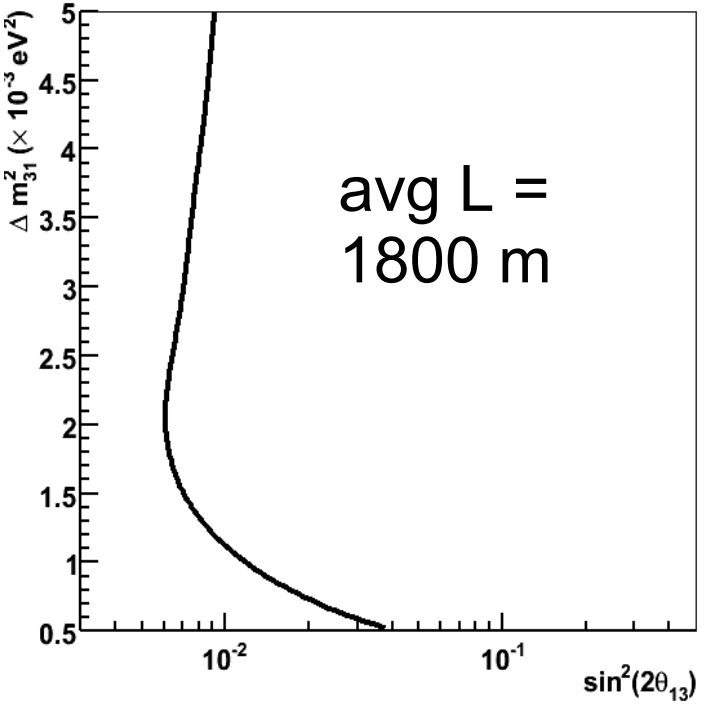
3 yr sensitivity for $\Delta m^2 = 2.5 \times 10^{-3}$ eV^2 vs average baseline

minimum is ~0.0065 at about 1800 m




avg L =
1600 m
Δm^2_{31} ($\times 10^{-3}$ eV^2)
$\sin^2(2\theta_{13})$


avg L =
1700 m
Δm^2_{31} ($\times 10^{-3}$ eV^2)
$\sin^2(2\theta_{13})$


avg L =
1800 m
Δm^2_{31} ($\times 10^{-3}$ eV^2)
$\sin^2(2\theta_{13})$

still have not completely solved the mystery....DocDB #300

Jun lists parameters he uses for sensitivity calculation. Distances match what is in TDR (and what I used). A few other things are different (he uses 75%, 85%, and 99% live time for DB, LA, and Far detectors) but outcome is the same...